Kreutzer, R. (1991). Cancer incidence in Sand Canyon: A review of cases ascertained by local residents, Environmental Health Investigations Branch, California Department of Health Services.

SUMMARY

The California Department of Health Services (DHS) reviewed a list of cancer cases ascertained by Sand Canyon residents to assess persistent concerns that contaminants from the Space Ordnance Systems (SOS) site might have been responsible for elevated numbers of cancer cases. Of the list of 72 cancer cases collected, 60 (83%) met specific inclusion criteria and 42 (58%) were confirmed after careful efforts to track team. Overall, the number of cancer cases observed from 1972-1988 (a 17-year period(in San Canyon is lower than the number expected. However, the observed numbers of leukemia and non-Hodgkin's lymphomas exceeded the expected numbers especially in the 0-19 year old age group. Proportional incidence calculations corroborate this excess of leukemias and non-Hodgkin's lymphomas.

Cancer cases did not geographically cluster around the SOS site or points where contamination was measured. Furthermore, according the previous reports, no environmental contamination was measured at levels of toxicological concern.

This review supports conclusions from previous reports that while there are some increased numbers of specific types of cancer in Sand Canyon, there is not evidence incriminating an environmental exposure. Elevated numbers of leukemias and non-Hodgkin's lymphomas are most likely due to natural fluctuations in the occurrence of these rare diseases, or unmeasured exposures unique to the individual cases.

INTRODUCTION

This report entails a review of information on cancer occurrences in the Sand Canyon area which was provided by a Sand Canyon resident and her neighbors. Staff from the California Department of Health Services (DHS) made substantial efforts to track all reported individuals, verify the report of cancer, obtain standard information about the cancer when verified, and determine if there were additional cases of cancer reported to the Los Angeles County Cancer Surveillance Program that were not included on the residents' list. Subsequently, the verified list of Sand Canyon cancer cases was used to examine observed vs. Expected numbers of cases, proportionate cancer incidence and the spatial relationship of cases to Space Ordnance Systems (SOS). It was hoped that this information would offer insights into Sand Canyon's past cancer experience.

BACKGROUND

SOS, a producer of explosive devices for the military, began operating at the head of Sand Canyon in 1967. In 1984, enforcement action was taken by local, state and federal authorities against SOS for illegal hazardous material management activities. At the time enforcement action was taken, it was not possible to determine precisely how long the potential for contamination had existed.

The news of that action against SOS and the contamination, which was not entirely characterized, focused community concerns on the potential for serious health consequences. One resident of the Sand Canyon area, at the urging of her homeowners association, solicited the assistance of neighbors to actively search for residents with a history of cancer or other unusual illness. Some residents also reported deaths of animals that seemed unusual.

The Toxic Substances Control Program (TSCP) of DHS was responsible for investigating and monitoring contamination on-site and in the surrounding area. By 1987, TSCP (now DTSC of California EP) approved the Remedial Action Plan for site clean-up which was designed by SOS.

In March 1986, DHS contracted with Thomas Mack, M.D., of the USC School of Medicine Department of Preventive medicine to investigate cancer occurrences in the Sand Canyon area. The resultant report, "Assessment of Cancer Risk to Persons Residing Near Space Ordnance Systems/Sand Canyon facility," released in June 1988, stated,

> No overall increase in risk from cancer at all-sites in adults and no statically meaningful increase in children was found in the [census] tracts near the [site], and no increased number of kinds of cancers with any excess have occurred. The individual neoplasms that showed elevated or unusual rates of occurrence were diverse, inconsistent in pattern, and showed no evidence of a relationship to the facility or to materials which might derive from it. The observed variations are best explained by chance and by the rapidly increasing size of the local population. For three routinely analyzed neoplasm combinations, namely all central nervous system tumors, all leukemias, and all lymphomata except Hodgkin's disease, patterns were also examined, and no suggestions of a relationship to the landfill was seen. (1)

The authors who were aware of the residents' collection of cases found no association between the SOS facility and the occurrence of cancer. They acknowledged that an association between the facility and cancer cases could be missed because "too small a proportion of people in the nearby census tracts have been exposed or, if exposed, have moved away, or because not enough time has elapsed for cancer to occur." (1)

In 1989, there was a great deal of media attention given to an extraordinary family tragedy in Sand Canyon. All three children had died within a three-year period of acute myelocytic leukemia (AML) having been diagnosed within a few years of moving to Sand Canyon. There was evidence that the mother's diagnosis, which eluded doctors before her death, was possibly AML as well. The stepfather of the children, who had alleged that his family's cancers were caused by SOS contaminants, died recently due to renal cell carcinoma. There was great public concern about these tragic and unusual cancer occurrences and the alleged association with the contamination from the SOS site. Once again, there were questions about the list of cancer cases that had been collected by the Sand Canyon residents.

Medical staff from the Environmental Epidemiology and Toxicology Program (EETP) of DHS assumed responsibility for evaluating the publicized family's medical records, for summarizing information on leukemias and lymphomas presented by Dr. Mach at an August 1989 community

meeting, and for reviewing and analyzing the survey of local cancer cases that had been conducted by the residents. The medical evaluation of the familial cases was completed in May, 1990. (2) The summary of information presented by Dr. Mack was completed in June, 1990. (3)